

Application No. 09/961,255
Reply to Office Action of July 11, 2003

IN THE CLAIMS

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Please amend the claims as follows:

Claim 1 (Currently Amended): A spin valve device comprising:

at least one stack of layers including an electrically conductive, nonmagnetic layer placed between first and second magnetic layers having a magnetization with a certain direction,

wherein at least one of said first and second magnetic layers ~~has directly at an interface with the nonmagnetic layer, is in direct contact with the electrically conductive, nonmagnetic layer, and has at said contact,~~ a specular reflection for conduction electrons dependent on an orientation of the spin of the conduction electrons relative to a magnetization direction in the first and second magnetic layers.

Claim 2 (Previously Presented): The device according to claim 1, wherein the magnetic layers having the specular reflection include a material selected from the group consisting of 1) ferromagnetic oxides based on at least one of iron, nickel, cobalt and chrome, and 2) ferromagnetic nitrides based on at least one of iron, nickel and cobalt.

Claim 3 (Previously Presented): The device according to claim 1, wherein the electrically conductive, nonmagnetic layer includes a material selected from the group consisting of copper, silver and gold.

Claim 4 (Previously Presented): The device according to claim 3, wherein the electrically conductive, nonmagnetic layer has a thickness less than approximately 10 nm.

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Claim 5 (Previously Presented): The device according to claim 1, further comprising an anti-ferromagnetic layer adjacent to at least one of said first and second magnetic layers.

Claim 6 (Previously Presented): The device according to claim 1, wherein the at least one stack is deposited on a substrate.

Claim 7 (Previously Presented): The device according to claim 1, wherein the at least one stack is covered by a protective layer.

Claim 8 (Previously Presented): The device according to claim 1, wherein both of the first and second magnetic layers have said electron specular reflection.

Claim 9 (Previously Presented): The device according to claim 1, wherein the first magnetic layer has an electron specular reflection, the second magnetic layer does not have said specular reflection, but has a diffusion of the conduction electrons dependent on the orientation of the spin of the conduction electrons relative to the magnetization direction in said second magnetic layer.

Claim 10 (Previously Presented): The device according to claim 9, wherein the second magnetic layer having the diffusion of the conduction electrons includes a material selected from the group consisting of transition metals, and alloys based on at least one of nickel, iron and cobalt.

Claim 11 (Previously Presented): The device according to claim 10, further comprising a ferromagnetic layer adjacent to the second magnetic layer.

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Claim 12 (Previously Presented): The device according to claim 1, wherein said at least one stack of layers includes a first stack of layers having the first electrically conductive, nonmagnetic layer placed between the first and second magnetic layers and a second stack of layers having a second electrically conductive, nonmagnetic layer placed between the second magnetic layer and a third magnetic layer, said second magnetic layer having a diffusion of the conduction electrons dependent on the orientation of the spin of the conduction electrons, the first magnetic layer of the first stack and the third magnetic layer of the second stack having in each case a specular reflection of the conduction electrons dependent on the orientation of said conduction electrons.